A hurricane strikes, bringing with it a tremendously destructive force that leaves a community without power. Or a flood, tornado, or earthquake occurs with little warning, disrupting normal communications. Emergency management teams, the national guard, and a myriad of other organizations respond with massive relief and rebuilding efforts. Food, water, and medical supplies are provided to survivors.

This scenario, unfortunately repeated numerous times a year, is one in which photovoltaics can play a vital role. Portable power systems, such as those equipped with PV, are capable of providing the electrical needs for vaccine refrigeration, microscopes and other medical equipment, lighting, radios, fans, communications, and traffic control devices, to name just a few. The energy provided is clean, quiet, and reliable. Stand-alone systems require no refueling, and they can operate for long periods of time. In fact, PV-powered systems are particularly appropriate for low-power needs and long-term use.

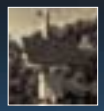
Portable photovoltaic power has been on the scene during Hurricanes Andrew, Hugo, Erin and Luis; at the destruction after the Northridge, California, earthquake; and at other catastrophic events. Continued training of emergency management teams will create an even larger niche for photovoltaics in these unfortunate situations.

◁ PowerPod's mobile power center suits a wide range of applications, especially radio communications, medical refrigeration, and outdoor lighting in the event of a natural disaster. A typical small pod would include a 100W PV panel, two 100 amp hour batteries, and an inverter for ac loads. These units have been deployed in Antarctica at McMurdo Station where they provide power for communications and monitoring equipment to measure global warming. *[Photo courtesy PowerPod/Sundance Solar]*

◁ SunWize mobile PV power units provide electricity for the homes of elderly residents of Knotts Island, North Carolina after Hurricane Fran. *[Photo courtesy North Carolina Solar Center]*

▽ After Hurricane Andrew in Dade County, Florida, this PV-powered street light was the only illumination surviving the destruction within five miles. Solar power kept the lights on in several communities for the two- or three-week period until utility power could be restored. The 64W system shown here was installed by Solar Outdoor Lighting, Stuart, Florida. *[Photo courtesy Solar Outdoor Lighting]*

◁ A Kyocera Solar module in Northern Arizona used for weather data instrument collecting and transmitting. *[Photo courtesy Kyocera Solar, Inc.]*



◁ Solar-powered early warning sirens, such as this one installed by Solar Depot, are found at nuclear power plants across the U.S. *[Photo courtesy Solar Depot]*

◁ Direct Global Power, Inc. has developed a portable PV-powered system for furnishing critical energy services during extended power outages following natural disasters such as hurricanes, floods, and earthquakes. This skid-mounted unit incorporates 16 AstroPower 1200W modules and a Trace sine wave-type 8000W continuous rating inverter. *[Photo courtesy Direct Global Power]*

◁ Global positioning systems may be powered with photovoltaics, such as the Solarex MSX-20 Lite™ system used for this Mount Everest seismic movement expedition. *[Photo courtesy Solarex, © Macgillivray-Freeman]*

▽ The Pacific Northwest Seismograph Network maintains many photovoltaic-powered monitoring stations like the one shown here on Mt. Rainier, Washington, where seismic data are collected and transmitted to assist in forewarning about earthquakes and volcanoes. *[Photo courtesy Pacific Northwest Seismograph Network]*